

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Number : 09/584,189 Confirmation No.: 4177
Applicant : Seung-Chan BANG et al.
Filed : May 31, 2000
Title : Apparatus And Method For Modulating Data Message By Employing
Orthogonal Variable Spreading Factor (OVSF) Codes In Mobile
Communication System
TC/Art Unit : 2611
Examiner: : Kevin Michael Burd

Docket No. : 68268.000007
Customer No. : **21967**

MAIL STOP AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Pursuant to the Pre-Appeal Brief Conference Program, Applicants hereby request a pre-appeal brief conference in the above-referenced application. The following responds to the Office Action of January 24, 2008 ("Office Action") regarding claims 180-256. A Notice of Appeal is attached.

Claims 180, 181, 183-185, 187-190, 192-201, 203-205, 207-210, 212-219, 233, 234, and 237-244 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,546,424 issued to Miyake ("Miyake") in view of U.S. Patent No. 6,108,369 issued to Ovesjö et al. ("Ovesjö") in view of U.S. Patent No. 5,734,647 issued to Yoshida et al. ("Yoshida"). Further, claims 182, 186, 191, 202, 206, 211, 220-232, 235, 236, and 245-247 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Miyake in view of Ovesjö in view of Yoshida and further in view of U.S. Patent No. 6,009,091 issued to Stewart et al. ("Stewart"). Further, claims 248, 249, and 253-256 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Miyake in view of Ovesjö in view of Yoshida and further in view of U.S. Patent No. 6,122,310 issued to Ziemer et al. ("Ziemer"). Further, claims 250-252 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Miyake in view of Ovesjö in view of Yoshida in view of Stewart and further in view of Ziemer. Applicants respectfully disagree for all of the reasons set forth in the previous responses filed October 31, 2007, June 5, 2007, and December 6, 2006, and for at least the following additional reasons.

Applicants respectfully submit the Office Action's allegation that Miyake, Ovesjö, Yoshida, Stewart, and Ziemer render the claims obvious is unreasonable at least because: (1) the cited references, neither alone nor in combination, teach or suggest systematic spreading of the specific channels by the specific codes recited in the claims; (2) the rejections and any supporting arguments fail to provide any motivation or rationale why the specific codes for the specific channels recited in the claims would be obvious to use; and (3) the Office Action engages in an improper "obvious to try" analysis.

I. The Cited References Fail to Disclose or Suggest the Recited Combinations

Each of the independent claims (claims 180, 200, 220, 223, 229, 233, 237, 240 and 243), recites a specific combination of elements that neither Miyake, Ovesjö, Yoshida, Stewart, or Ziemer show separately or in combination.

For example, claim 180 recites a spreading method for a mobile station comprising: "systematically spreading a first one of the data channels by $C_{4,1}$; systematically spreading a second one of the data channels by $C_{4,1}$; and systematically spreading a third one of the data channels by $C_{4,3}$, wherein . . . when three and not more than three of the data channels are used, the first one of the data channels, the second one of the data channels, and the third one of the data channels are used." Miyake, Ovesjö, Yoshida, Stewart, and Ziemer, neither alone nor in combination, however, teach or suggest using an OVFSF code with a spreading factor of 4 and a code number of 1 using a code numbering scheme starting with 0, i.e., $C_{4,1}$ (the second of the four sequences) *for the first two data channels* and an OVFSF code with a spreading factor of 4 and a code number of 3 using a code numbering scheme starting with 0, i.e., $C_{4,3}$ (the last of the four sequences) *for the third data channel*. In fact, the Office Action does not even attempt to point out where in Miyake, Ovesjö, Yoshida, Stewart, and Ziemer, alone or in combination, this recited combination is disclosed or suggested.

Further, dependent claims 248-256 recite in various forms that "the third one of the data channels is systematically spread with $C_{4,3}$ instead of $C_{4,2}$ to reduce the peak to average power ratio of the mobile station." The Office Action cites Ziemer as allegedly disclosing a "method and apparatus for selecting a subset of spreading codes from a set of spreading codes for transmission . . . [that] allows the system to maintain a lower peak to average power ratio than a traditional sum of codes." Office Action at 10. Ziemer, however, achieves a lower peak to average power ratio by segmenting source data into two blocks and selecting unspecified spreading codes for simultaneous transmission of the two blocks. Ziemer lacks any teaching of *spreading with $C_{4,3}$ instead of $C_{4,2}$* to reduce the peak to average power ratio. Ziemer therefore does not teach or suggest the recited combinations.

II. There is No Motivation or Rationale for Systematically Spreading the Specific Channels by the Specific Codes Recited in the Claims Based on Miyake, Ovesjö, Yoshida, Stewart, or Ziemer

The Office Action asserts that, despite the deficiencies in the cited references, selecting the recited spreading codes nevertheless would have been obvious. The Office Action relies on

Ovesjö to disclose spreading codes applied to multiple channels (e.g., split between in-phase and quadrature-phase data in pairs) and the use of the OVFS codes (e.g., $C_{4,1}$, $C_{4,2}$, $C_{4,3}$, and $C_{4,4}$ of Ovesjö). Recognizing that Ovesjö does not teach using the same spreading code to the first two data channels used, though, the Office Action cites Yoshida and asserts that it would have been obvious to “use the same spreading code for each I and Q pair as taught by Yoshida in the method of Ovesjö to minimize the number and complexity of spreading codes used. This in turn would allow the data rate to be at a maximum.” Office Action at 4. Then, without citation, the Office Action concludes that “[w]hen three data channels are used, the first, second, and third data channels are used.” Office Action at 4. The Office Action’s analysis is both incorrect and insufficient to demonstrate the obviousness of the previously presented claims.

Ovesjö fails to disclose assigning specific spreading codes to specific data channels where two data channels are assigned one spreading code and the third is assigned a different one and where those codes are $C_{4,1}$ to the first two data channels used and $C_{4,3}$ to the third data channel used. Yoshida simply cannot make up for that deficiency because, at most, Yoshida teaches the use of the *same spreading code* for two data channels. Yoshida, like the discussion in Ovesjö at lines 36-43 of column 6, only describes the use of one code on the I and Q channels. Nor can Miyake cure the deficiency because Miyake simply discloses at most assigning a different spreading code to each channel in a set.

What the Office Action fails to support, however, is its contention that one of ordinary skill in the art would be motivated to choose to use an OVFS code with a spreading factor of 4 and a code number of 1 using a code numbering scheme starting with 0, i.e., $C_{4,1}$ (the second of the four sequences) *for the first two data channels* and an OVFS code with a spreading factor of 4 and a code number of 3 using a code numbering scheme starting with 0, i.e., $C_{4,3}$ (the last of the four sequences) *for the third data channel*. The examples in Ovesjö suggest that allocating a specific spreading code to a data channel is not important so long as the system “allocate[s] a spreading code which makes the [data channel to be allocated] orthogonal to the [control channel] ... and which makes the [data channel to be allocated] orthogonal to any other [data channel] that is on the same I or Q branch of the transmitter.” Ovesjö, col. 6, ll. 26-30. Indeed, later in a more specific example, Ovesjö indicates that where $C_{4,1}$ is allocated to the control channel and $C_{8,5}$ is allocated to a data channel, the next data channel “could then be allocated *any* of codes $C_{8,3}$, $C_{8,4}$, $C_{8,6}$, $C_{8,7}$, or $C_{8,8}$.” Ovesjö, col. 6, lines 37-43 (emphasis added).

Ovesjö therefore clearly teaches away from a systematic approach of using the specific codes of $C_{4,1}$ *for the first two data channels* used and $C_{4,3}$ *for the third data channel*, so long as the spreading code assigned to the third data channel is orthogonal to the spreading code assigned to the first data channel (and the spreading code assigned to the control channel). For that reason, one of ordinary skill in the art would also have no reason to combine Ovesjö with a reference like Miyake that discloses assigning a unique spreading code to each channel.

Ovesjö and the other cited references thus fail to provide any direction to use the specific codes of $C_{4,1}$ for the first two data channels used and $C_{4,3}$ for the third data channel used, as recited in the claims.

III. The Office Action Engages in an Improper “Obvious To Try” Analysis

It appears that the Office Action is taking the position that it would have been obvious to one of ordinary skill in the art to try *any* of the various combinations of codes suggested by Ovesjö for *any* data channel. This is an improper “obvious to try” analysis and a clear legal deficiency in the rejections.

As explained in *In re O’Farrell*, 853 F.2d 894, 902 (Fed. Cir. 1988), “obvious to try” is not the standard. *Id.* “In some cases, what would have been ‘obvious to try’ would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful.” *Id.* Where there is no indication of a direction of which of many possible choices is likely to be successful, despite something being possibly “obvious to try,” the Office fails to meet its burden to establish a prima facie case of obviousness. *Id.*; *In re Geiger*, 815 F.2d 686, 688 (Fed. Cir. 1987).

In *Geiger*, the Examiner issued an obviousness rejection where all of the various components recited in the claim were known for use in water treatment and the Office was contending that using any of the components in any combination would have been obvious. *Id.* at 686. “Based upon the prior art and the fact that each of the three components of the composition used in the claimed method is conventionally employed in the art for treating cooling water systems, the board held that it would have been prima facie obvious, within the meaning of 35 U.S.C. § 103, to employ these components in combination for their known functions and to optimize the amount of each additive.” *Id.* The Federal Circuit reversed, finding that the Office failed to establish a prima facie case of obviousness. The Office failed to establish that there was any direction to select the claimed relationship among the components. *Id.* at 688.

Here, as in *Geiger*, the Office Action acknowledges that Ovesjö fails to describe the specific selection of orthogonal variable factor sequences recited in the claims (C_{4,1} for the first two data channels and C_{4,3} for the third data channel). It attempts to explain why one of ordinary skill in the art might select one code for the first two data channels and a different code for the third data channel (although that argument lacks support as well). Yet it never even attempts to provide any indication that there is any “direction” in any reference to use C_{4,1} for the first two data channels used and C_{4,3} for the third data channel used. Under *Geiger*, assertions like these amount to merely a statement that the claimed features may have been “obvious to try,” but fail to present a prima facie case of obviousness of any of the claims.

Moreover, the Supreme Court in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007), held that something that is “[m]erely . . . obvious to try” is also obvious *only* when there is a design need or market pressure *and* “a finite number of identified, predictable solutions” that “leads to the anticipated success.” Here, the Office Action fails to set forth that there is a design need or market pressure *and* a finite number of identified, predictable solutions that “leads to the anticipated success.” Neither the rejections nor the arguments presented by the Office Action articulate a design need or market pressure for the selection of the specific orthogonal variable

factor sequences for the specific channels recited in the claims. Accordingly, the Office Action fails to meet the requirements for “obvious to try” analysis as set forth by the Supreme Court in *KSR*.

IV. Conclusion

As discussed in detail herein, Miyake, Ovesjö, Yoshida, Stewart, and Ziemer, neither alone nor in combination, teach or suggest systematic spreading of the specific channels by the specific codes recited in the claims. Further, the rejections and any supporting arguments fail to provide any motivation or rationale why the specific codes for the specific channels recited in the claims would be obvious to use. Moreover, the Office Action’s “obvious to try” analysis is improper. Therefore, because reversal of the pending rejections is likely, Applicants respectfully request that the cost of appeal be avoided by withdrawing the above rejections.

Dated: April 9, 2008

Respectfully submitted,

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